REMARKS

Claims 77-81 are all the claims pending in the application. Applicant thanks the Examiner for indicating that claims 78, 80 and 81 contain allowable subject matter. Applicant has included with this response a Declaration under 37 C.F.R. § 1.132 by Mr. William L. Kopko, the inventor of the claimed invention.

In view of the above amendments, the accompanying Declaration under 37 C.F.R. § 1.132 and the following remarks, Applicant respectfully requests reconsideration of this application and allowance of all of the claims.

As a preliminary matter, the disclosure has been objected to for a minor typographical error. The specification has been amended to correct the typographical error.

Claims 77 and 79 have been rejected under 35 U.S.C. § 102(b) as being anticipated by Munk (U.S. Patent No. 4,667,465). This rejection is respectfully traversed.

Applicable case law holds that in order to anticipate a claim, a single prior art reference must disclose each and every feature of the claim. In this case, Munk fails to disclose all the limitations of independent claim 77.

Among other things, Munk fails to teach or suggest the supercharging subsystem of independent claim 77. The supercharging subsystem as set forth in claim 77 comprises at least one supercharging fan *which increases the pressure of the gas turbine subsystem input airstream*, whereby power output of the turbine and hence electrical output of the electrical generator may be increased (emphasis added). In other words, the capacity of gas turbine power plants at high ambient temperatures is improved by reducing air temperature downstream of the supercharging fan and providing an inlet pressure to the gas turbine that is substantially above atmospheric pressure. The Patent Office analogizes the blower 160 of Munk to Applicant's supercharging subsystem. However, the blower 160, as described in column 3, lines 64-67, merely provides a forced draft of air through a chamber which includes a fogging subsystem 200, an input duct 115, and an input opening of a compressor 110. There is

no teaching or suggestion in Munk that a positive air pressure is supplied to the turbine subsystem In fact, Munk is not concerned with improving turbine capacity, and therefore, there is no reason that increased air pressure be supplied to the turbine system. Munk's primary concern is reducing oxides of nitrogen (NOx) or NOx emissions. See column 2, lines 64-68. Since Munk fails to teach Applicant's "supercharging subsystem," Munk cannot anticipate claim 77. Thus, the rejection of claim 77 should be withdrawn.

In support of the above arguments, Mr. Kopko explains in his Declaration that the purpose of Munk's blower 160 is to overcome extra pressure drops from the heater 190 and the fogging subsystem 200. The blower 160 is not analogous to a supercharging fan which supplies an air pressure to a turbine that is substantially above atmospheric pressure. Thus, blower 160 does not increase the pressure of the gas turbine subsystem input airstream whereby power output of the turbine and hence electrical output of the electrical generator may be increased, as set forth in claim 77. For at least this reason, Munk cannot anticipate or suggest the invention of claim 77.

Dependent claim 79 depends from independent claim 77, and is submitted to be patentable over the Munk reference for at least the same reasons set forth above in connection with claim 77.

Applicant submits that the present application is now in condition for allowance. Reconsideration and favorable action are earnestly requested.

RESPECTFULLY SUBMITTED,					
NAME AND REG. NUMBER	Vincent M. DeLuca Attorney for Applicant Reg. No. 32,408				
SIGNATURE	Vincent M DeLuca		DATE	7 MAY 03	
Address	Rothwell, Figg, Ernst & Manbeck, p.c. Suite 800, 1425 K Street, N.W.				
City	Washington	*State*	D.C.	*Zip Code*	20005
Country	U.S.A.	*Telephone*	202-783-6040	*Fax*	202-783-6031

Attachment: Amendments to the Specification

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Marked-Up Version of Amendment to Specification

Please amend, page 38, second full paragraph as follows:

A controller 161 controls the operation of the supercharger 190. The basic approach is to reduce fan pressure and the amount of fogging at lower ambient temperatures to prevent overload of the generator and other components in the gas-turbine power plant. A fan inlet temperature sensor 182 and a fan outlet temperature sensor 184 provide input to the controller. As the ambient wet-bulb temperature drops, the fan inlet temperature provides a signal to the controller to reduce fan capacity by providing an output signal to reduce the pitch of the fan blades. In addition, the lower temperatures means that less water is required to saturate the air, so the controller [160] 161 can turn off some of the pumps for the foggers.

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PATENT & TRADEMARK OFFICE

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of

William L. KOPKO

Serial No.: 10/009,195 Examiner: John F. Belena

Filed: April 18, 2002 Group Art Unit: 3746

For: SUPERCHARGING SYSTEM
FOR GAS TURBINES

DECLARATION UNDER 37 C.F.R. §1.132

Assistant Commissioner for Patents
Washington, D.C. 20231

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TECHNOLOGY CENTER R3700

Dear Sir:

I, William L. Kopko, do declare and state that:

I am the inventor of the above-identified application.

My educational background and employment are shown in my Curriculum Vitae, attached hereto as Exhibit 1.

A. THE APPLIED REFERENCE

I have reviewed the subject patent application, including the Preliminary Amendment filed December 10, 2001. I have also reviewed the Office action of the Patent and Trademark Office mailed February 7, 2003 and, in particular, U.S. Patent No. 4,667,465 (Munk). As a result of my detailed review of the above items, I make the following observations.

Generally, Munk concerns reducing NOx emissions, while the present invention is primarily related to increasing turbine capacity. In particular, the present invention improves the capacity of gas turbine power plants at high ambient temperatures by reducing air temperature downstream of a supercharging fan and providing an inlet pressure to the gas turbine that is substantially above atmospheric pressure. There is no disclosure in Munk of any improvement in turbine capacity.

B. THE PRESENT INVENTION

In the present invention, independent claim 77 recites:

> A supercharged, power-producing gas turbine system, said system comprising:
> a gas turbine subsystem and an electrical generator, said gas turbine subsystem comprising a compressor, a burner, and a gas turbine, wherein a gas turbine subsystem input airstream is compressed by said compressor, heated by said burner, and expanded through said turbine to cause said turbine to rotate, whereby said turbine drives said generator to generate electrical power;
> a supercharging subsystem comprising at least one supercharging fan which increases the pressure of said gas turbine subsystem input airstream, whereby power output of said turbine and hence electrical output of said electrical generator may be increased; and
> at least one fogger located upstream of said gas turbine subsystem input airstream, for providing a source of mist to humidify and cool said input airstream before it is inputted to said compressor.

C. DISCUSSION

After carefully reviewing the above prior art reference cited by the Patent and Trademark Office, in my opinion, the Munk reference does not disclose the claim limitations of independent claim 77.

Specifically, Munk does not disclose "a supercharging subsystem comprising at least one supercharging fan which increases the pressure of said gas turbine subsystem input airstream, whereby power output of said turbine and hence electrical output of said electrical generator may be increased," as recited in independent claim 77. While some embodiments of Munk show a blower located upstream of a gas turbine, there is no teaching or suggestion of an air pressure supplied to the turbine. The most reasonable interpretation is that the blower of Munk merely overcomes any extra pressure drop from the heater and fog system, which is different from a supercharging fan or supercharging in general (e.g., supplying an air pressure to a turbine that is substantially above atmospheric pressure).

Further, Munk includes heaters downstream of the blower in addition to a fogger. There is no teaching or suggestion of a specific temperature going into the turbine, but the heaters can easily overcome any cooling effect provided by the evaporation of the fog. The quantity of water added from the fogger is not specified in Munk, but a level of 2 to 4% or more of the total air mass flow into the turbine would be consistent with those found in other systems (e.g., water injection or steam injection) that use moisture for NOx control. At these high levels of fogging, substantial heat would have to be added by the heaters to ensure

complete evaporation, which will almost certainly result in a net increase in air temperature between the blower and the turbine. In the present invention, on the other hand, the air temperature entering the turbine is well below that leaving the supercharging fan.

Lastly, Munk teaches the use of water with substantial levels of dissolved solids, while the present invention uses demineralized water with essentially no dissolved solids. The presence of dissolved solids requires a substantial temperature difference between the dry bulb and wet bulb to ensure complete evaporation of the water in the drop. As water evaporates, the dissolved salts become more concentrated, which lowers the vapor pressure and prevents complete evaporation. Since Munk teaches that the remaining particles are "dry," the air entering the gas turbine has a low relative humidity. In order to achieve this low relative humidity and high moisture content, the inlet air temperature must be high. Accordingly, the fogger and heater assembly of Munk increases air temperature rather than cools the air.

D. CONCLUSION

I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: May 5, 2003

William L. Kopko

William L. Kopko

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Curriculum Vitae

William L Kopko
Vice President, WorkSmart Energy Enterprises Inc (1997 to present)
President, Enhanced Turbine Output LLC (2001 to present)
President, CoolSmart LLC (2001 to present)

Vision
To invent breakthrough technologies in the field of energy productivity that can be manufactured for equal or less money than competitors and provide equal or superior service

Capabilities and Commitments

- **Inventor** starting at York with the invention of a new refrigerant
- Unique Blend of **Engineering Skills** to produce low cost and practical products combined with strong understanding of business and economics to assist in **Marketing and Sales** of Inventions and Products
- **Committed** to translating innovation into reality that is profitable

Track Record Summary

1997- present
Chief Inventor at WorkSmart responsible for inventions in refrigeration, motors, turbines, engines, compressors, power electronics. Co-founded Enhanced Turbine Output LLC and CoolSmart LLC, which are spinoffs of WorkSmart. Enhance Turbine Output LLC is currently selling new technology for improving the performance of gas turbines with a beta installation in a laboratory in Canada planned for summer 2003. CoolSmart LLC is implementing a new air-conditioning technology in a retail building in California.

1990-1997
Provided engineering support for building program and refrigeration programs at US EPA resulting in patent for new refrigerator system that was licensed to Samsung and has been US EPA's most profitable intellectual property. Developed methodology for Energy Star Buildings that is now used by dozens of major corporations in US and worldwide.

1980-1990
Provided engineering expertise and innovation for York International, a major air-conditioning manufacturer. Work includes development of new product lines, major cost reduction programs and identification of new refrigerants.

ACCOMPLISHMENTS

WorkSmart Energy Enterprises, Inc
Enhanced Turbine Output LLC
CoolSmart LLC
1997-present

Developed Improved Supercharging System for Gas Turbines: Has prepared numerous, detailed proposals for proprietary supercharging systems for large gas turbines. Active negotiations are underway with owners of gas turbines for implementation in 2004. Provided design for a microturbine supercharging system under contract with CANMET, a branch of the Canadian government. Implemention of a laboratory system is expected by the end of the summer of 2003.

Invented other new technologies which have led to issued patents with many more pending. Inventions include:

- Variable-speed drives,
- High-performance air-conditioning system,
- Improved internal-combustion engine,
- Low-cost solar dehumidifier and air conditioner,
- Add-on system for enhancing turbine performance,
- Two-pressure compressors,
- New Damper Systems, and
- Topping Cycle for Turbines.

Built prototypes for Company to qualify technologies

Developed Marketing Assessments for new businesses including those for turbine enhancement; single-phase inverter; and super-efficient air conditioner

Contributed to Firms R v nu Str am with energy-efficiency consulting

R cruit d retired engineer to help firm develop power electronics

Wrot pat nts that patent counsel perfected that extend inventions to allow broadest possible claims.

Engineering Selling new inverter technology for driving single-phase motors that WorkSmart licensed on non-exclusive basis to TB Woods Inc.

US Environmental Protection Agency 1990-1997

Co-Invented tandem Refrigerator Cycle now licensed to Samsung and in production with more than 1,000,000 units a year. This invention is the largest money-maker of any patent ever developed at US EPA.

Invented New Heat Exchanger that increases efficiency of rooftops 25%.

Developed Energy Star Building methodology for upgrading existing space of partners that commit to program (50% space upgraded in 5 years).

Developed Evaluations of Alternate Refrigerants With Industry, including pioneering replacements of HCFC22.

York Air International 1980-1990

CFC Phase Out: Developed a cost and performance analysis for wide range of chiller designs and refrigerants. This analysis served as the basis for York's successful response to the phase out of CFC refrigerants

Chiller Design: Developed new designs for water-cooled and air-cooled reciprocating chillers. Designs included major cost reductions and performance enhancements. In the case of the air-cooled chillers, reduced the size of the equipment by up to 50% while increasing cooling capacity. Also developed designs for screw and centrifugal chillers.

ISSUED PATENTS AS OF MAY 5, 2003

PAT. NO.	Title
6,513,339	Solar air conditioner
6,442,942	Supercharging system for gas turbines
6,405,543	High-efficiency air-conditioning system with high-volume air distribution
6,318,977	Reciprocating compressor with auxiliary port
6,308,512	Supercharging system for gas turbines
6,286,326	Control system for a refrigerator with two evaporating temperatures
6,234,036	Roller mechanism
6,185,943	High-efficiency air-conditioning system with high-volume air distribution
6,121,749	Variable-speed drive for single-phase motors
6,035,637	Free-piston internal combustion engine
5,974,822	Rotating disk evaporative cooler
5,947,854	Combined variable-speed drive and speed reducer for pumps and fans
5,867,994	Dual-service evaporator system for refrigerators
5,406,805	Tandem refrigeration system
5,076,064	Method and refrigerants for replacing existing refrigerants in centrifugal compressors

EDUCATION

Bachelors (1980) and Masters of Engineering (1983) degrees from the University of Virginia in Mechanical Engineering